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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/537,813 | 06/07/2005 | Kazuhiro Takatani | 052593 | 6357 |

38834 7590 05/10/2006

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EXAMINER

THOMAS, ERIC W

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2831

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/537,813

Applicant(s)

TAKATANI ET AL.

Examiner

Eric Thomas

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10, 11, 13-16, 18-21, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 5, 7-9, 12, 17 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claim 8 recites the limitation "the silver oxide particles" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, ~~5~~⁶ are rejected under 35 U.S.C. 102(b) as being anticipated by 58-161315 ('315).

'315 discloses a solid electrolytic capacitor comprising an anode formed of tantalum, and a dielectric layer, an electrolytic layer and a cathode disposed on the anode, wherein the cathode comprises a mixed layer containing a first material

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consisting of silver particles having an average particle diameter (median diameter) of not less than 2 μm , a second material consisting of conducting silver particles having an average particle diameter (median diameter) of 1 μm , or less and a binding agent (see col. 2 paragraph 2-3).

Regarding claim 2, '315 discloses the cathode comprises a carbon layer formed between the electrolytic layer and the mixed layer.

Regarding claim 6, '315 discloses the binding agent is at least one resin selected from polyimide resin, epoxy resin, and polyester resin.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 58-161315 ('315).

Regarding claims 3-4, '315 discloses the claimed invention except for the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt%.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to for the capacitor of '315 wherein the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt %, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Claims 10-11, 13-14, 15-16, 18-19, 20-21, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 58-161315 ('315) in view of 57-83022 ('022).

'315 discloses a solid electrolytic capacitor comprising a tantalum anode and a dielectric layer, an electrolytic layer and a cathode disposed on the anode, wherein the cathode comprises a mixed layer containing a first material consisting of silver particles having an average diameter of not less than 2 μm , and a second material consisting of silver particles having a mean diameter of less 1 μm , or less and a binding agent.

'315 discloses the claimed invention except for the silver particles having a scale-shape.

'022 teaches an improvement to solid electrolytic capacitor wherein the silver particles have a scale-shape.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the silver particles having a scale shaped as taught by '022, since such a modification would improve the solderability of the cathode.

Regarding claim 11, '315 discloses the cathode comprises a carbon layer formed between the electrolytic layer and the mixed layer.

Regarding claim 13-14, '315 discloses the claimed invention except for the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt%.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to for the capacitor of '315 wherein the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt %, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 15, '315 discloses a solid electrolytic capacitor comprising a tantalum anode and a dielectric layer, an electrolytic layer and a cathode disposed on the anode, wherein the cathode comprises a mixed layer containing a first material consisting of silver particles having an average diameter of not less than 2 μm , and a second material consisting of silver particles having a mean diameter of less 1 μm , or less and a binding agent.

'315 discloses the claimed invention except for the silver particles having a scale-shape.

'022 teaches an improvement to solid electrolytic capacitor wherein the silver particles have a scale-shape.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the silver particles having a scale shaped as taught by '022, since such a modification would improve the solderability of the cathode.

Regarding claim 16, '315 discloses the cathode comprises a carbon layer formed between the electrolytic layer and the mixed layer.

Regarding claim 18-19, '315 discloses the claimed invention except for the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt%.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to for the capacitor of '315 wherein the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt %, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 20, '315 discloses a solid electrolytic capacitor comprising a tantalum anode and a dielectric layer, an electrolytic layer and a cathode disposed on the anode, wherein the cathode comprises a mixed layer containing a first material consisting of silver particles having an average diameter of not less than 2 μm , and a

second material consisting of silver particles having a mean diameter of less 1 μm , or less and a binding agent.

'315 discloses the claimed invention except for the silver particles having a scale-shape.

'022 teaches an improvement to solid electrolytic capacitor wherein the silver particles have a scale-shape.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the silver particles having a scale shaped as taught by '022, since such a modification would improve the solderability of the cathode.

Regarding claim 21, '315 discloses the cathode comprises a carbon layer formed between the electrolytic layer and the mixed layer.

Regarding claim 23-24, '315 discloses the claimed invention except for the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt%.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to for the capacitor of '315 wherein the amount of the second material based on the total amount of the first material and the second material is set in a range of 3 to 40 wt %, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Allowable Subject Matter

9. Claims 5, 7-9, 12, 17, 22^{are} objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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10. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or suggest (taken in combination with the other claimed features) the silver particles having the diameter of 1 micrometer or less are reduced from silver oxide particles (claim 5); the conducting carbon particles are carbon black and/or graphite (claim 7); silver oxide particles having the average particle diameter of 1 micrometer or less in the mixed layer are reduced (claims 8-9); a ratio of a maximum length L to a thickness d (L/d) of the scale-shape silver particle is set in a range of 4 to 100 (claims 12, 17, 22).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6,783,703 – discloses a solid electrolytic capacitor comprising a silver containing layer.

6,381,121 -- discloses a solid electrolytic capacitor comprising a silver containing layer.

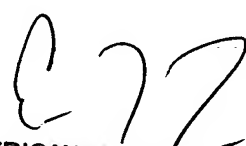
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:45 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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ERIC W. THOMAS
PRIMARY EXAMINER 5-8-06